

CLAIMS:

1. A syringe, including:

a syringe casing;

5 a syringe body within the casing and defining a chamber for holding a charge of liquid, the syringe body being controllably moveable relative to the casing;

a hollow needle connected to the syringe body for movement therewith and extending from the casing for use of the syringe;

10 a plunger reciprocally moveable within the body for drawing liquid into the body chamber and/or ejecting liquid from the body chamber through the needle; and,

control means enabling the syringe to draw and/or eject a charge of liquid through the needle, whereupon movement of the syringe body and needle
15 relative to the casing disables the syringe.

2. A syringe as claimed in claim 1, wherein the syringe body is controllably movable relative to the casing from a position in which the syringe is enabled for drawing and/or ejecting the liquid charge, to a position in which the syringe is
20 disabled preventing syringe use, and the control means effects controlled movement of the body from the enabled position to the disabled position.

3. A syringe as claimed in claim 2, wherein the syringe body is controllably movable from the enabled position to a disabling position in which the syringe is
25 positioned for disablement, and then from the disabling position to the disabled position, and the control means effects controlled movement of the body through the disabling position.

4. A syringe as claimed in claim 2 or 3, wherein the syringe casing and
30 body are each elongate, and the syringe body is axially and rotatably slideable within the syringe casing, the syringe body sliding from the enabled position to the disabled position.

5. A syringe as claimed in any one of claims 2 to 4, wherein the syringe body is axially slidable into the disabled position, sliding of the syringe body into the disabled position retracting the needle into the casing to thereby disable the syringe.

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6. A syringe as claimed in any one of claims 2 to 5, wherein the control means includes at least one control member on the syringe casing, and at least one control member on the syringe body, the control members on the syringe casing and body inter-engaging during syringe use to thereby effect the controlled movement of the body.

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7. A syringe as claimed in claim 6, wherein the control members include at least one control cam and at least one cam follower, the cam and cam follower inter-engaging to effect the controlled movement of the body.

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8. A syringe as claimed in claim 7, wherein the cam is located on the body, and the cam follower is located on the casing.

9. A syringe as claimed in claim 7 or 8, wherein the cam follower is a follower pin.

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10. A syringe as claimed in any one of claims 7 to 9, wherein the control cam is elongate and has at least one profiled camming surface extending therealong for operative engagement by the cam follower.

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11. A syringe as claimed in claim 10 when appended to claim 9, wherein the control cam includes a camming groove or slot for receiving the cam follower pin therein, the cam follower pin progressively travelling along the camming groove or slot causing relative movement between the syringe body and casing in response to the camming surface profile.

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12. A syringe as claimed in any one of claims 7 to 11, wherein a single cam follower is provided, the single cam follower being located on an inner surface of the syringe casing and extending generally inwardly therefrom.

13. A syringe as claimed in claim 12, wherein a single control cam is provided, the single control cam being located at an outer surface of the syringe body in facing relation to the single cam follower during engagement
5 therebetween.

14. A syringe as claimed in any one of claims 7 or 13, wherein the control cam includes camming stages spaced there along, each with a respective camming surface with which the cam follower successively travels over to
10 cause indexed movement of the syringe body relative to the casing through each camming stage.

15. A syringe as claimed in claim 14, wherein the camming stages including one or more of:

- 15 a. a charge draw camming stage during which a liquid charge is drawn into the body chamber;
- b. an air ejection camming stage during which air is ejected from the needle;
- c. a blood draw camming stage during which blood is drawn from a
20 vein into the needle; and,
- d. a charge ejection camming stage during which a liquid charge is ejected from the body chamber,

 movement of the plunger during each camming stage forcing the follower into engagement with and to travel over the respective camming surface and
25 thereby cause the syringe body to rotatably slide relative to the syringe casing.

16. A syringe as claimed in claim 15, wherein the camming stages, when provided, are arranged in the order:

- 30 a. charge draw camming stage,
- b. air ejection camming stage,
- c. blood draw camming stage, and
- d. charge ejection camming stage.
- along the control cam.

17. A syringe as claimed in any one of claims 14 or 16, wherein the control cam includes detent stages adjacent the end of each of the camming stages for ending travel of the cam follower over the preceding camming stage and directing the cam follower toward the successive camming stage.

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18. A syringe as claimed in claim 17, wherein each detent stage has a respective camming surface, the camming surfaces in the detent stages being angled relative to the camming surfaces in the preceding camming stages so as to redirect travel of the cam follower and cause the indexed movement of the syringe body through each camming stage.

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19. A syringe as claimed in any one of claims 14 to 18 when appended to claim 2, wherein the control cam includes a disabling camming stage during which the cam follower and cam disengage and the syringe body moves toward the disabled position.

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20. A syringe as claimed in claim 19 when appended to claim 10 or any claim appended thereto, wherein the camming groove or slot has an open end through which the follower pin moves to exit from the camming groove or slot so as to release the syringe body for longitudinal sliding movement relative to the syringe casing to the disabled position and thereby retracting the needle into the casing.

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21. A syringe as claimed in claim 19 or 20, and including biasing means acting on the syringe body to slidably move the body when in the disabling position to the disabled position.

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22. A syringe as claimed in claim 21, wherein the biasing means includes a resilient biasing spring acting between the syringe casing and body, to bias the body along the casing into the disabled position.

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23. A syringe as claimed in any one of claims 14 to 22, wherein the syringe body is moveable from an enabling position, in which the needle is retracted and housed within the casing, to the enabled position, and the control cam

includes an enabling camming stage, movement of the syringe body to the enabled position causing the cam follower to engage the cam and travel over the camming surface of the enabling camming stage, the syringe body sliding along the casing so as to project the needle from the casing for use of the syringe.

24. A syringe as claimed in claim 23 when appended to claim 11 or any claim appended thereto, wherein the camming groove or slot has an open end through which the follower pin moves to enter the camming groove or slot so as to engage the camming surface of the enabling camming stage.

25. A syringe as claimed in claim 11 or any claim appended thereto, wherein the camming groove or slot is of generally zig-zag configuration, and the camming and detent stages of the control cam are arranged on opposite sides of apical points of the camming groove or slot.

26. A syringe as claimed in any one of claims 2 to 25, wherein the syringe casing includes an access hole through which the needle extends during use of the syringe, the access hole being offset from the needle so that when the needle is retracted into the casing into the disabled position, the retracted needle misaligning with the access hole so as to prevent re-extension of the needle from the casing.

27. A syringe as claimed in any one of claims 2 to 26, and including locking means acting on the body to prevent subsequent movement thereof relative to the casing when in the disabled position.

28. A syringe as claimed in claim 27, wherein the locking means includes at least one locking element on each of the syringe body and casing, the locking elements inter-engaging when the syringe body moves into the disabled position, thereby preventing further movement of the syringe body.

29. A syringe, substantially as hereinbefore described with reference to what is shown in the accompanying drawings.